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COCA;

ITS

Physiological Properties.



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❖ COCA. ❖

ITS PHYSIOLOGICAL PROPERTIES.

It is a little singular that an agent so long known as coca should have attracted little or no attention in the medical world until a comparatively recent date. This is perhaps to some extent due to the fact that when the Spanish first made conquest of Peru, the aborigines and all their customs were treated with the utmost contempt; this was especially the case with regard to coca, which was then as now, extensively used by the natives—the leaves being chewed as we do tobacco. This habit was denounced by the Spaniards, and the use of coca forbidden among the whites. And hence it has only been after the lapse of centuries that these early prejudices have been gradually overcome and the valuable medicinal properties of the plant begun to be appreciated.

Before speaking of the more important therapeutic uses of coca, it will be interesting and instructive to glance briefly at the history of its employment, and of its physiological properties as developed among the natives of the Andes, along

the valleys and slopes of which the shrub grows wild and is also extensively cultivated.

From remote antiquity the peruvians have been in the habit of chewing the leaves at frequent intervals during periods of repose. So general was the use of this plant, and so common the demand for it, that it formed the usual money or medium of exchange in Peru, just as has been the case with tobacco in the early colonial history of Virginia and in certain provinces of S. W. Africa. At present, all the natives and very many whites use it regularly. It is to the mountain Indian the delight, the support, and in some manner the necessity of his life. Whether climbing dizzy heights in the pursuit of game or delving in the mine it is his custom to resort, at intervals, to his pouch (*chuspa*), from which he takes a few leaves and in a peculiar, methodical manner prepares his *acullico*, or chew, the enjoyment of which seems to impart the most blissful satisfaction. Ordinarily, the native takes from three to four such chews every day. Dr. Weddell, an extensive traveller in Bolivia, places the amount used by one person at from one to one and a half ounces per day, and on holidays twice that quantity.

The coca leaf acts differently according to the method of using it; when made into a tea and drank it produces a gentle excitement followed by wakefulness. If the infusion be somewhat stronger it retards hunger and imparts unusual bouyancy, enabling one who has partaken of it to ascend great heights, carry burdens, or run rapidly without the sense of fatigue or breathlessness. The more gradual absorption of its properties from the quid rolled in the mouth however, is preferred by the

Indian; employed in this way it cheers his heart, brightens his mind, and renews his bodily strength for the rigorous tasks of life. * * * *

The effects of coca are in every way healthful and pleasant. Von Tschudi (*Travels in Peru, 1838 to 1842*—London, 1847) says: "Setting aside all extravagant and visionary notions on the subject, I am clearly of the opinion that the moderate use of coca is not merely innoxious, but that it may even be very conducive to health. In support of this conclusion I may refer to the numerous examples of longevity among Indians who, almost from the age of boyhood, have been in the habit of masticating coca three times a day. Cases are not unfrequent of Indians attaining the great age of 130 years; and these men, at the ordinary rate of consumption, must in the course of their lives have chewed not less than 2,700 pounds of the leaf, and yet have retained perfect health."

It is worthy of remark that the Peruvian Indians have always ascribed to it the most extraordinary virtues. Clusius, writing as far back as 1605, says that when he asked them why they used coca, the answer was that when using it neither hunger nor thirst annoyed them, while their strength and vigor were confirmed. Other writers, who have had ample opportunities to observe, unite in testifying that coca, moderately consumed, seems to exert extraordinary powers in smoothing over the ordinary vicissitudes of life.

Weddell remarks that while coca seems to sustain the body while fasting, it does not destroy the appetite, for coca-chewers eat heartily when they can get what, in the parlance of the day, would be termed a *square meal*.

Perhaps no better illustration could be given of the vitalizing and sustaining influence of this remarkable agent than by citing an instance mentioned by Von Tschudi: "A cholo of Huari, named Hatan Huamang, was employed by me in very laborious digging. During the five days and nights he was in my service he never tasted any food, and took only two hours' sleep each night. But at intervals of two and a half or three hours he regularly chewed about half an ounce of coca leaves, and he kept an *acullico* continually in his mouth. I was constantly beside him and therefore I had an opportunity of closely observing him. The work for which I had engaged him being finished, he accompanied me on a two days' journey of twenty-three leagues across the level heights. Though on foot, he kept up with the pace of my mule, and halted only for the *chaccar*. On leaving me, he declared he would willingly engage himself again for the same amount of work, and that he would go through it without food, if I would but allow him a sufficient supply of coca. The village priest assures me that this man was sixty-two years of age, and that he had never known him to be ill in his life."

Notwithstanding the early denunciations of Spanish priests, the virtue of the coca leaf held its ground, and by degrees leading churchmen became converts to its daily use. One of the warmest advocates of the plant was the Jesuit Don Antonio Julian, who, in a work entitled "*Perla de America*," laments that coca is not introduced into Europe instead of tea and coffee. "It is," he observes, "melancholy to reflect that the poor of Europe cannot obtain this preservation against hunger and thirst,

and that our working people are not supported by this strengthening plant in their long continued labors."

In 1793, Dr. Don Pedro Nolasco Crespo urged the issuing of regular rations of coca in the navies of Europe. Von Tschudi has also recommended it as fitted "to afford a nutritious refreshment to seamen in the exercise of their laborious duties, and to counteract the unwholesome effect of salt provisions." And Prof. Schlechtendal, after recommending it as a tonic, soothing, and nutritive—as preventing weakness of the stomach, and the obstructions, colic and hypochondria, to which such weakness gives rise—adds that, "without doubt, the leaves might be usefully employed in Europe." Johnston, in his "Chemistry of Common Life," after noticing all the arguments for and against coca, strongly recommends it in all cases of physical and mental labor.

The chemical properties of the coca leaf, like many other analogous plants, are somewhat complex in their nature. Much of its activity depends upon an alkaloid crystalline principle known as *cocaine*, or *cocaina*. But according to those who have devoted most time to its practical study, the peculiar properties of this plant belong partly to *cocaina* and partly to certain odoriferous resins. Coca contains an essential oil which is exceedingly volatile, and it is for this reason that the leaves speedily lose their high flavor and specific virtue when not carefully preserved. Johnston states that they lose much of their strength after the lapse of a year. It would seem therefore that a properly prepared fluid extract would be more efficient for medical purposes than the alkaloid alone. All depends, however, on

the proper curing and handling of the leaves, and the fact that they must be comparatively fresh.

Judging from the authentic physiological history of coca, which we have, we are fully authorized in declaring that, when properly used, even as a masticant, it acts as an excellent nerve tonic—imparting strength to both body and mind—and that it thus contributes to health and longevity. These facts commend it to the medical profession for more extended attention than it has hitherto received. It has been highly lauded as of great service in cases of nervous depression, whether the result of overwork, mental anxiety, sexual excesses, or the abuse of tobacco. It has been spoken of as useful in spermatorrhœa, and in cases of partial impotence. It is as a preventative of nerve-prostration, and as a restorative, that Bartholow confines its most valuable powers, and mentions in this connection that “the celebrated pedestrian Weston, having learned this fact, was detected in the use of coca during one of his extraordinary feats in London.” The same author remarks that it is a valuable remedy in the nervous form of sick-headache, migraine, a fact of which the writer has had repeated clinical proof.

I have prescribed coca quite frequently within the last few years, and in many instances with most gratifying results. Its property of retarding thirst, while at the same time acting as a cerebral stimulant, renders it a most excellent substitute for ardent spirits, or beer, especially when persons have been indulging too freely and are attempting to break off the habit. It seems to strengthen will-power, by removing that shakiness and mental depression which is one of the incentives with the

inebriate to return to his cups. I have also been told by intelligent patients that this drug certainly seems to possess the virtue of contributing to the relief of that longing which at times overtakes the drunkard with such overwhelming force. When administered under such circumstances it promotes a sense of composure which enables the patient to sleep, whereas, when in health, the same dose would aid his faculties in keeping awake.

Coca has been suggested as a uterine tonic in amenorrhœa and in some forms of nervous dysmenorrhœa; of this fact, however, I have not satisfied myself, although I have found it useful in the intense hypochondria which sometimes attends these conditions, and in this way it may prove indirectly beneficial.

The field where this agent is likely to be employed with the best results is with that class of persons, so numerous in these days, who are wearing out under the mental and physical strain of a busy life; those who are afflicted with the numerous train of ills incident to exhausted nerves and brains. Under such circumstances I have found coca of signal benefit. It seems to retard destructive metamorphosis and impart temporary vigor, during which time tired nature has an opportunity of taking breath as it were. In order to obtain satisfactory results, however, it is important to administer a good article, as the different extracts vary greatly in strength.

